

GP1643

PATENT

Attorney Docket No.: A-66566-3/RFT/RMS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

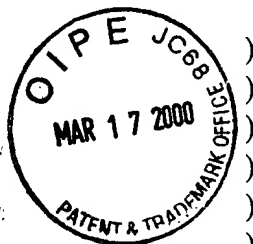
In re application of:

BLACKBURN

Serial No. 09/440,371

Filed: November 12, 1999

For: BINDING ACCELERATION
TECHNIQUES FOR THE
DETECTION OF ANALYTES



Examiner: NOT YET ASSIGNED

Group Art Unit: 1643

D. K. K. K.
MAR 21 2000
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CERTIFICATE OF MAILING

I hereby certify that this correspondence, including listed enclosures, is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 on:

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Signed: Christine P. Peters

Christine P. Peters

INFORMATION DISCLOSURE STATEMENT
AND
STATEMENT OF RELATEDNESS

Assistant Commissioner
for Patents
Washington, DC 20231

Sir:

In satisfaction of the duty of disclosure under 37 C.F.R. § 1.56, and in accordance with the provisions of 37 C.F.R. §§ 1.97 and 1.98, Applicant wishes to draw the attention of the U.S. Patent and Trademark Office to the references cited on the accompanying form PTO-1449. Since copies of references A-EEE and 1-111 were provided either by the Applicant or the Examiner in the following related

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U.S. Application; Serial No. 09/134,058, filed August 14, 1998, upon which the instant application relies for its priority date, in accordance with 37 C.F.R. § 1.98(d), no copies of these references are enclosed. Copies of all other references are enclosed.

Further, in accordance with the provisions of 37 C.F.R. §§ 1.97(c) and 1.97(e)(1), the undersigned certifies that references FFF, GGG, III, JJJ, KKK, and 112 listed on the enclosed form PTO-1449 were cited in an International Search Report dated December 15, 1999, for the counterpart PCT application. As such, the filing of the instant Information Disclosure Statement is within three months of the date of that International Search Report and, therefore, need not be accompanied by the fee as set forth in 37 C.F.R. § 1.17(p). A copy of the International Search Report for the counterpart PCT application is enclosed herewith.

As required by M.P.E.P. §2001.06(b), Applicant notes that the present application is related to the following:

1. United States Serial No.09/134,058, filed August 14, 1998 and U.S.S.N. 09/338,726, filed June 23, 1999.
2. United States Serial No. 08/743,798, filed November 5, 1996, U.S.S.N. 08/873,978, filed June 12, 1997; U.S.S.N. 08/889,510, filed July 24, 1997; and U.S.S.N. 08/911,085, filed August 14, 1997.
3. United States Serial No. 08/873,597 filed June 12, 1997; and U.S.S.N. 08/911,589, filed August 14, 1997.
4. United States Serial No. 09/096,593, filed June 12, 1998.

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5. Patent Nos. 6,013,459 and 6,013,170, both of which issued on January 11, 2000; and United States Serial No. 09/417,988, filed October 13, 1999.

6. U.S.S.N. No. 09/014,304, filed January 27, 1998; U.S.S.N. No. 09/135,183, filed August 17, 1998; U.S.S.N. No. 09/238,351, filed January 27, 1999; U.S.S.N. No. 09/245,105, filed January 27, 1999; U.S.S.N. No. 09/295,691, filed April 21, 1999; U.S.S.N. No. 09/306,653, filed May 6, 1999; U.S.S.N. No. 09/452,277, filed December 3, 1999; U.S.S.N. No. 09/397,957, filed September 17, 1999; U.S.S.N. No. 09/428,155, filed October 27, 1999; U.S.S.N. No. 09/472,657, filed December 27, 1999; and lastly an application filed January 21, 2000, Plaxco, et al., entitled "Biosensors Utilizing Ligand Induced Conformation Changes."

None of the foregoing references are believed to disclose the invention as claimed. Nothing herein shall constitute an admission concerning the contents of any of the cited references, nor shall the inclusion of a reference herein be considered an admission that the reference constitutes prior art against the invention claimed in the above-identified application. Submission of the present document shall not be construed as an admission that a search has been made or that better art does not exist.

Although no fee is believed to be due, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 06-1300 (Our Order No. A-66566-3/RFT/RMS).

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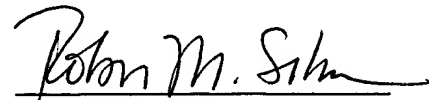
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An additional copy of this Information Disclosure Statement is enclosed.

Respectfully submitted,

FLEHR, HOHBACH, TEST,
ALBRITTON & HERBERT

Dated: 3/13/00



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INFORMATION DISCLOSURE CITATION

PTO-1449

 ATTY. DOCKET NO.
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RMK

 SERIAL NO.
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 APPLICANT
BLACKBURN et al.

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 GROUP
1643

PATENT DOCUMENTS

EXAMINER'S INITIALS		PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	A	4,707,352	11/17/87	Stavrianopoulos			
	B	4,707,440	11/1987	Stavrianopoulos	435	6	
	C	4,711,955	12/8/87	Ward, et al.			
	D	4,755,458	7/5/88	Rabbani, et al.			
	E	4,849,513	7/18/89	Smith, et al.	536	27	
	F	4,868,103	9/19/89	Stavrianopoulos, et al.			
	G	4,894,325	1/16/90	Englehardt, et al.			
	H	4,943,523	7/24/90	Stavrianopoulos			
	I	4,952,685	8/28/90	Stavrianopoulos			
	J	4,994,373	2/19/91	Stavrianopoulos			
	K	5,002,885	3/26/91	Stavrianopoulos			
	L	5,013,831	5/7/91	Stavrianopoulos			

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS		PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							Yes	No
	M	0 063 879	11/3/82	Europe				
	N	92/10757	6/25/92	WO				
	O	95/15971	6/15/95	WO				
	P	0 234 938	2/26/87	EP (A2)				
	Q	93/10267	5/27/93	WO				
	R	2,090,904	9/24/93	Canada				
	S	0 599 337	1/16/94	EP (A2)				

EXAMINER

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U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS		PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	T	5,082,830	1/21/92	Brakel, et al.			
	U	5,175,269	12/29/92	Stavrianopoulos			
	V	5,241,060	8/31/93	Englehardt, et al.			
	W	5,278,043	1/11/95	Bannwarth, et al.	536	23.1	
	X	5,312,527	5/17/94	Mikkelsen, et al.	204	153.12	
	Y	5,328,824	7/12/94	Ward, et al.			
	Z	5,449,767	9/12/95	Ward, et al.			
	AA	5,472,881	12/5/95	Beebe, et al.	436	94	
	BB	5,476,928	12/19/95	Ward, et al.			
	CC	5,595,908	1/21/97	Fawcett, et al.	534	11	
	DD	5,565,552	10/15/96	Magda, et al.	534	11	
	EE	5,573,906	11/12/96	Bannwarth, et al.	435	6	
	FF	5,591,578	1/7/97	Meade, et al.	435	6	
	GG	5,601,982	2/1997	Sargent, et al.	435	6	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS		PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							Yes	No
	HH	238,166	1988	JP (Abstract 63-238166)				
	II	0 229 943	7/29/87	EP (B1)				
	JJ	96/40712	12/19/96	WO				
	KK	0515615	9/4/96	EP UK				
	LL	97/01646	1/16/97	WO				
	MM	93/23425	11/25/93	WO				

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PATENT DOCUMENTS

EXAMINER'S INITIALS		PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	NN	4,840,893	6/20/89	Hill et al.	435	6	
	OO	5,403,451	4/4/95	Riviello et al.	204	153.1	
	PP	5,620,850	4/15/97	Bamdad et al.	530	300	
	QQ	5,780,234	7/14/98	Meade et al.	435	6	
	RR	5,770,369	6/23/98	Meade et al.	435	6	
	SS	5,705,348	1/6/98	Meade et al.	435	6	
	TT	5,705,346	1/6/98	Okamoto et al.	435	6	
	UU	5,571,568	11/5/96	Ribi et al.	427	487	
	VV	5,156,810	6/15/89	Ribi	422	82.01	
	WW	5,491,097	2/13/96	Ribi et al.	436	518	
	XX	5,776,672	7/7/98	Hashimoto et al.	435	6	
	YY	5,605,662	2/1997	Heller et al.	422	68.1	
	ZZ	5,632,957	6/1997	Heller et al.	422	68.1	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS		PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							Yes	No
	AAA	90/05732	5/31/90	WO				
	BBB	94/22889	10/13/94	WO				
	CCC	97/01646	01/16/97	WO				
	DDD	98/35232	8/13/98	WO				
	EEE	98/04740	2/5/98	WO				

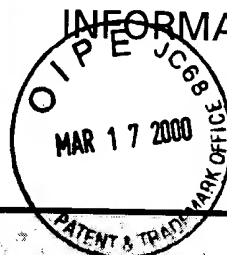
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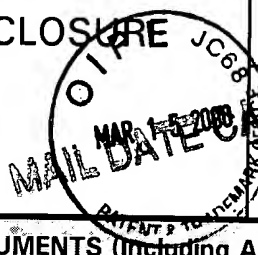
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

- | | |
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| 1 | Albers, W. M., et al., "Design of Novel Molecular Wires for Realizing Long-Distance Electron Transfer," <i>Bioelectrochemistry</i> , 42:25-33 (1997). |
| 2 | Allerman, K.S., et al., "Electrochemical Rectification at a Monolayer-Modified Electrode," <i>J. Phys. Chem.</i> , 100:(42) 17050-17058 (1996). |
| 3 | Aizawa, M., et al., "Integrated Molecular Systems for Biosensors," <i>Sensors and Actuators B</i> , B24 (Nos 1/3) part 1:1-5 (March 1995). |
| 4 | Arkin, M., et al., "Evidence for Photoelectron Transfer Through DNA Intercalation," <i>J. Inorganic Biochem. Abstracts</i> , 6th International Conference on Bioinorganic Chemistry, 51(1) & (2):526 (1993). |
| 5 | Barisci, et al., "Conducting Polymer Sensors," <i>TRIP</i> , 4(9):307-311 (1996). |
| 6 | Baum, R. M., "Views on Biological, Long-Range Electron Transfer Stir Debate," <i>C&EN</i> , pp 20-23 (1993). |
| 7 | Bechtold, R., et al., "Ruthenium-Modified Horse Heart Cytochrome c: Effect of pH and Ligation on the Rate of Intramolecular Electron Transfer between Ruthenium(II) and Heme(III)," <i>J. Phys. Chem.</i> , 90(16):3800-3804 (1986). |
| 8 | Bidan, "Electroconducting conjugated polymers: new sensitive matrices to build up chemical or electrochemical sensors. A Review," <i>Sensors and Actuators</i> , B6:45-56 (1992). |
| 9 | Biotechnology and Genetics: Genetic Screening Integrated Circuit," <i>The Economist</i> (February 25-March 3, 1995). |
| 10 | Boguslavsky, L. et al., "Applications of redox polymers in biosensors," <i>Solid State Ionics</i> , 60:189-197 (1993). |
| 11 | Bowler, B. E., et al., "Long-Range Electron Transfer in Donor (Spacer) Acceptor Molecules and Proteins," <i>Progress in Inorganic Chemistry: Bioinorganic Chemistry</i> , 38:259-322 (1990). |
| 12 | Brun, A. M., et al., "Photochemistry of Intercalated Quaternary Diazaaromatic Salts," <i>J. Am. Chem. Soc.</i> , 113:8153-8159 (1991). |
| 13 | Bumm, et al., "Are Single Molecular Wires Conducting?," <i>Science</i> 271:1705-1707 (1996). |
| 14 | Cantor, C.R. et al., "Report on the Sequencing by Hybridization Workshop," <i>Genomics</i> , 13:1378-1383 (1992). |
| 15 | Carr, J.D., et al., "Novel Electrochemical Sensors for neutral Molecules," <i>Chem. Commun.</i> , 1649-1550 (1997). |
| 16 | Carter, et al., "Voltammetric Studies of the Interaction of Metal chelates with DNA. 2. Tris- Chelated Complexes of Cobalt (III) and Iron (II) with 10-Phenanthroline and 2,3'-Bipyridine," <i>J. Am. Chem. Soc.</i> , 111:8901-8911 (1989). |
| 17 | Chang, I-Jy, et al., "High-Driving-Force Electron Transfer in Metalloproteins: Intramolecular Oxidation of Ferrocyanide by Ru(2,2'-bpy) ₂ (im)(His-33) ³⁺ ," <i>J. Am. Chem. Soc.</i> , 113:7056-7057 (1991). |
| 18 | Chidsey, C.E.D., et al., "Free Energy and Temperature Dependence of Electron Transfer at the Metal Electrolyte Interface," <i>Science</i> , 251:919-923 (1991). |
| 19 | Chidsey, et al., "Coadsorption of Ferrocene-Terminated and Unsubstituted Alkanethiols on Gold" Electroactive Self-Assembled Monolayers," <i>J. Am. Chem. Soc.</i> , 112:4301-4306 (1990). |
| 20 | Chrissey, et al., "Covalent attachment of synthetic DNA to self-assembled monolayer films," <i>Nucleic Acids Research</i> , 24(15):3031-3039 (1996). |
| 21 | Clery, "DNA Goes Electric," <i>Science</i> , 267:1270 (1995). |
| 22 | <i>Commerce Business Daily Issue</i> of September 26, 1996 PSA#1688. |
| 23 | DATABASE WPI, Derwent Publications Ltd., London, GB; AN 88-320199 & JP, A, 53 238 166 (MITSUBISHI DENKI KK), 4 October 1988. |

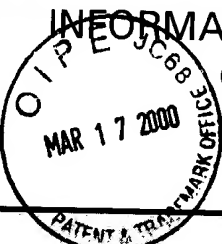

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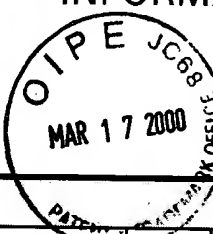
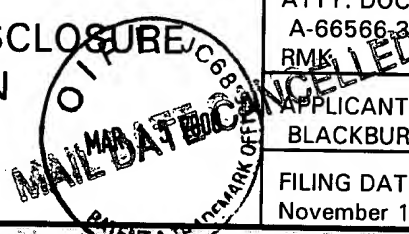
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		APPLICANT BLACKBURN et al.	
		FILING DATE November 12, 1999	GROUP 1643
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
24	Davis, L. M., et al., "Electron Donor Properties of the Antitumour Drug Amsacrine as Studied by Fluorescence Quenching of DNA-Bound Ethidium," <i>Chem.-Biol. Interactions</i> , 62:45-58 (1987).		
25	Davis, L. M., et al., "Elements of biosensor construction," <i>Enzyme Microb. Technol.</i> 17:1030-1035 (1995).		
26	Degani et al., "Direct Electrical Communication between Chemically Modified Enzymes and Metal Electrodes. 2. Methods for Bonding Electron-Transfer Relays to Glucose Oxidase and D-Amino-Acid Oxidase," <i>J. Am. Chem. Soc.</i> 110:2615-2620 (1988).		
27	Degani, Y., et al., "Electrical Communication between Redox Centers of Glucose Oxidase and Electrodes via Electrostatically and Covalently Bound Redox Polymers," <i>J. Am. Chem. Soc.</i> , 111:2357-2358 (1989).		
28	Degani, Y., et al., "Direct Electrical Communication between Chemically Modified Enzymes and Metal Electrodes. 1. Electron Transfer from Glucose Oxidase to Metal Electrodes via Electron Relays, Bound Covalently to the Enzyme," <i>J. Phys. Chem.</i> , 91(6):1285-1288 (1987).		
29	Deinhammer, R.S., et al., "Electrochemical Oxidation of Amine-containing compounds: A Route to the Surface Modification of glassy carbon electrodes," <i>Langmuir</i> , 10:1306-1313 (1994).		
30	Dreyer, G. B., et al., "Sequence-specific cleavage of single-stranded DNA: Oligodeoxynucleotide-EDTA-Fe(II)," <i>Proc. Natl. Acad. Sci. USA</i> , 82:968-972 (1985).		
31	Durham, B., et al., "Photoinduced Electron-Transfer Kinetics of Singly Labeled Ruthenium Bis(bipyridin) Dicarboxybipyridine Cytochrome c Derivatives," <i>Biochemistry</i> , 28:8659-8665 (1989).		
32	Durham, B., et al., "Electron-Transfer Kinetics of Singly Labeled Ruthenium(II) Polypyridine Cytochrome c Derivatives," <i>American Chemical Society</i> , pages 181-193 (1990).		
33	Elias, H., et al., "Electron-Transfer Kinetics of Zn-Substituted Cytochrome c and Its Ru(NH ₃) ₅ (Histidine-33) Derivative," <i>J. Am. Chem. Soc.</i> , 110:429-434 (1988).		
34	Farver, O., et al., "Long-range intramolecular electron transfer in azurins," <i>Proc. Natl. Acad. Sci. USA</i> , 86:6968-6972 (1989).		
35	Fox, L. S., et al., "Gaussian Free-Energy Dependence of Electron-Transfer Rates in Iridium Complexes," <i>Science</i> , 247:1069-1071 (1990).		
36	Fox, M. A., et al., "Light-Harvesting Polymer Systems," <i>C&EN</i> , pages 38-48 (March 15, 1993).		
37	Francois, J-C., et al., "Periodic Cleavage of Poly(dA) by Oligothymidylates Covalently Linked to the 1,10-Phenanthroline-Copper Complex," <i>Biochemistry</i> , 27:2272-2276 (1988).		
38	Friedman, A. E., et al., "Molecular 'Light Switch' for DNA: Ru(bpy) ₂ (dppz) ²⁺ ," <i>J. Am. Chem. Soc.</i> , 112:4960-4962 (1990).		
39	Fromherz, P., et al., "Photoinduced Electron Transfer in DNA Matrix from Intercalated Ethidium to Condensed Methylviologen," <i>J. Am. Chem. Soc.</i> , 108:5361-5362 (1986).		
40	Gardner, et al., "Application of conducting polymer technology in microsystems," <i>Sensors and Actuators</i> , A51:57-66 (1995).		
41	Gregg, B. A., et al., "Cross-linked redox gels containing glucose oxidase for amperometric biosensor applications," <i>Anal. Chem.</i> , 62:258-263 (1990).		
EXAMINER		DATE CONSIDERED	

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)			
	42	Gregg, B. A., et al., "Redox Polymer Films Containing Enzymes. 1. A Redox-Conducting Epoxy Cement: Synthesis, Characterization, and Electrocatalytic Oxidation of Hydroquinone," <i>J. Phys. Chem.</i> , 95:5970-5975 (1991).	
	43	Hashimoto, et al., "Sequence-Specific Gene Detection with a Gold Electrode Modified with DNA Probes and an Electrochemically Active Dye," <i>Anal. Chem.</i> 66:3830-3833 (1994).	
	44	Hegner, et al., "Immobilizing DNA on gold via thiol modification for atomic force microscopy imaging in buffer solutions," <i>FEBS</i> 336(3):452-456 (1993).	
	45	Heller, A., et al., "Amperometric biosensors based on three-dimensional hydrogel-forming epoxy networks," <i>Sensors and Actuators</i> , 13-14:180-183 (1993).	
	46	Heller, A., "Electrical Wiring of Redox Enzymes," <i>Acc. Chem. Res.</i> , 23:128-134 (1990).	
	47	Heller et al., "Fluorescent Energy Transfer Oligonucleotide Probes," <i>Fed. Proc.</i> 46(6):1968 (1987) Abstract No. 248.	
	48	Ho "DNA-Mediated Electron Transfer and Application to 'Biochip' Development," <i>Abstract. Office of Naval Research</i> (Report Date: July 25, 1991) 1-4, RR04106.	
	49	Hobbs et al., "Polynucleotides Containing 2'-Amino-2'-deoxyribose and 2'-Azido-2'-deoxyribose," <i>Biochemistry</i> , 12(25):5138-5145 (1973).	
	50	Hsung, et al., "Synthesis and Characterization of Unsymmetric Ferrocene-Terminated Phenylethynyl Oligomers," <i>Organometallics</i> , 14:4808-4815 (1995).	
	51	Hsung, et al., "Thiophenol Protecting Groups for the Palladium-Catalyzed Heck Reaction: Efficient Syntheses of Conjugated Arylthiols," <i>Tetrahedron Letters</i> . 36(26):4525-4528 (1995).	
	52	Jenkins et al., "A Sequence-Specific Molecular Light Switch: Tebhering of an Oligonucleotide to a Dipyrrophenazine Complex of Ruthenium (II), <i>J. Am. Chem. Soc.</i> , 114:8736-8738 (1992).	
	53	Johnston, D.H., et al., "Trans-Dioxorhenium (V)- Mediated Electrocatalytic Oxidation of DNA at Indium Tin-Oxide Electrodes: Voltammetric Detection of DNA Cleavage in Solution," <i>Inorg. Chem.</i> 33:6388-6390 (1994).	
	54	Katritzky, et al., "Pyridylethylation - A New Protection Method for Active Hydrogen Compounds," <i>Tetrahedron Letters</i> , 25(12):1223-1226 (1984).	
	55	Kelley, S.O. and J.K. Barton, "Electrochemistry of Methylene Blue Bound to a DNA-Modified Electrode," <i>Bioconjugate Chem.</i> , 8:31-37 (1997).	
	56	Kojima et al., "A DNA Probe of Ruthenium Bipyridine Complex Using Photocatalytic Activity," <i>Chemistry Letter</i> , pp 1889-1982 (1989).	
	57	Korri-Youssoufi, H., et al., "Toward Bioelectronics: Specific DNA Recognition Based on an Oligonucleotide-Functionalized Polypyrrole," <i>J. Am. Chem.</i> 119:(31) 7388-7389 (1997).	
	58	Laviron, E., "A.C. Polarography and Faradaic Impedance of Strongly Adsorbed Electroactive Species. Part I: Theoretical and Experimental Study of a Quasi-Reversible Reaction in the Case of a Langmuir Isotherm," <i>J. Electroanal. Chem.</i> , 97:135-149 (1979).	
	59	Laviron, E., "A.C. Polarography and Faradaic Impedance of Strongly Adsorbed Electroactive Species. Part III: Theoretical Complex Plane Analysis for a Surface Redox Reaction," <i>J. Electroanal. Chem.</i> , 105:35-42 (1979).	
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		APPLICANT BLACKBURN et al.	
FILING DATE November 12, 1999		GROUP 1643	
OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)			
60	Lee, et al., "Direct Measurement of the Forces Between Complementary Strands of DNA," <i>Science</i> , 266:771-773 (1994).		
61	Lenhard, J.R., et al., "Part VII Covalent Bonding of a Reversible- Electrode Reactant to Pt Electrodes Using an organosilane Reagent" <i>J. Electroanal. Chem.</i> , 78:195-201 (1977).		
62	Lincoln, P., et al., "Short-Circuiting the Molecular Wire: Cooperative Binding of Δ -[Rh(phen) ₂ dppz] ²⁺ and Δ -[Rh(phi) ₂ dppz] ³⁺ to DNA," <i>J. Am. Chem. Soc.</i> , 119:1454-1455 (1997).		
63	Lipkin "Identifying DNA by the Speed of Electrons," <i>Science News</i> , 147(8):117 (1995).		
64	Maskos, et al., "Oligonucleotide hybridisations on glass supports: a novel linker for oligonucleotide synthesis and hybridisation properties of oligonucleotides synthesised <i>in situ</i> ," <i>Nucleic Acids Research</i> , 20(7):1679-1684 (1992).		
65	Mazzocchi, Ph.H. and G. Fritz, "Photolysis of N-(2-Methyl-2-Propenyl)phthalimide in Methanol. Evidence Supporting Radical-Radical Coupling of a Photochemically Generated Radical Ion Pair," <i>Journal of the American Chemical Society</i> , 108(18):5361-5362 (1986).		
66	McGee, et al., "2'-Amino-2'-deoxyuridine via an Intramolecular Cyclization of a Trichloroacetimidate," <i>J. Org. Chem.</i> , 61:781-785 (1996).		
67	Meade, T. J., "Driving-Force Effects on the Rate of Long-Range Electron Transfer in Ruthenium-Modified Cytochrome c," <i>J. Am. Chem. Soc.</i> , 111:4353-4356 (1989).		
68	Meade, T. J., et al., "Electron Transfer through DNA: Site-Specific Modification of Duplex DNA with Ruthenium Donors and Acceptors," <i>Angew Chem. Int. Ed. Engl.</i> , 34:352 (1995).		
69	Mestel, "'Electron Highway' Points to Identity of DNA," <i>New Scientist</i> , p. 21 (1995).		
70	Millan, et al., "Voltammetric DNA Biosensor for Cystic Fibrosis Based on a Modified Carbon Paste Electrode," <i>Anal. Chem.</i> , 66:2943-2948 (1994).		
71	Millan, K.M., et al., "Covalent Immobilization of DNA onto Glassy Carbon Electrodes," <i>Electroanalysis</i> , 4:929-932 (1992).		
72	Millan, K.M. and Mikkelsen, S.R., "Sequence-Selective Biosensor for DNA Based on Electroactive Hybridization Indicators," <i>Anal. Chem.</i> , 65:2317-2323 (1993).		
73	Miller, C., "Absorbed ω -Hydroxy Thiol Monolayers on Gold Electrodes: Evidence for Electron Tunneling to Redox Species in Solution," <i>J. Phys. Chem.</i> , 95:877-886 (1991).		
74	Murphy, C. J., et al., "Long-Range Photoinduced Electron Transfer Through a DNA Helix," <i>Science</i> , 262:1025-1029 (1993).		
75	Mucic, R.C., et al., "Synthesis and Characterization of DNA with Ferrocenyl Groups Attached to Their 5'-Termini: Electrochemical Characterization of a Redox-Active nucleotide Monolayer," <i>Chem. Commun.</i> , 555-557 (1996).		
76	Napier, M.E., et al., "Probing Bionucleic Acid Recognition with Electron Transfers Electrochemical Sensors for DNA Hybridization," <i>Bioconjugate Chem</i> 8:905-913 (1997).		
77	Orellana, G., et al., "Photoinduced Electron Transfer Quenching of Excited Ru(II) Polypyridyls Bound to DNA: The Role of the Nucleic Acid Double Helix," <i>Photochemistry and Photobiology</i> , 54(4):499-509 (1991).		
78	Palecek, "From Polarography of DNA to Microanalysis with Nucleic Acid-Modified Electrodes," <i>Electroanalysis</i> , 8(1):7-14 (1996).		
EXAMINER		DATE CONSIDERED	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION PTO-1449 MAR 17 2000 MAIL DATE CANCELLED PATENT & TRADEMARK OFFICE		ATTY. DOCKET NO. A-66-3/RFT/RMS/	SERIAL NO. 09/440,371
		APPLICANT BLACKBURN et al.	
		FILING DATE November 12, 1999	GROUP 1643
OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)			
79	Paterson, "Electric Genes: Current Flow in DNA Could Lead to Faster Genetic Testing," <i>Scientific American</i> , 33-34 (May 1995).		
80	Purugganan, M. D., et al., "Accelerated Electron Transfer Between Metal Complexes Mediated by DNA, <i>Science</i> , 241:1645-1649 (1988).		
81	Reimers, J.R., et al., "Towards Efficient Molecular Wires and Switches: The Brooker Ions," <i>BioSystems</i> 35:107-111 (1995).		
82	Rhodes, D. And A. Klug, "Helical Periodicity of DNA Determined by Enzyme Digestion," <i>Nature</i> , 286:573-578 (1980).		
83	Risser, S. M., et al., "Electron Transfer in DNA: Predictions of Exponential Growth and Decay of Coupling with Donor-Acceptor Distance," <i>J. Am. Chem. Soc.</i> , 115(6):2508-2510 (1993).		
84	Sato, Y., et al., "Unidirectional Electron Transfer at Self-Assembled Monolayers of 11-Ferrocenyl-1-undecanethiol on Gold," <i>Bull. Chem. Soc. Jpn.</i> , 66(4):1032-1037 (1993).		
85	Satyanarayana, S., et al., "Neither Δ - nor Λ -Tris(phenanthroline)ruthenium(II) Binds to DNA by Classical Intercalation," <i>Biochemistry</i> , 31(39):9319-9324 (1992).		
86	Schlereth, D.D., et al., "Self-Assembled Monolayers with Biospecific Affinity for NAD (H)-Dependent Dehydrogenases: Characterization by Surface Plasmon Resonance Combined with Electrochemistry 'in situ'," <i>Journal of Electroanalytical Chemistry</i> 444:231-240 (1998).		
87	Schreiber, et al., "Bis(purine) Complexes of $trans$ - a_2Pt^{II} : Preparation and X-ray Structures of Bis(9-methyladenine) and Mixed 9-Methyladenine, 9-Methylguanine Complexes and Chemistry Relevant to Metal-Modified Nucleobase Triples and Quartets," <i>J. Am. Chem. Soc.</i> 118:4124-4132 (1996).		
88	Schuhmann, W., et al., "Electron Transfer between Glucose Oxidase and Electrodes via Redox Mediators Bound with Flexible Chains to the Enzyme Surface," <i>J. Am. Chem. Soc.</i> , 113:1394-1397 (1991).		
89	Schumm, et al., "Iterative Divergent/Convergent Approach to Linear Conjugated Oligomers by Successive Doubling of the Molecular Length: A Rapid Route to a 128 Å-Long Potential Molecular Wire," <i>Angew. Chem. Int. Ed. Engl.</i> , 33(11):1360-1363 (1994).		
90	Sigel, G.B., et al., "A Self-Assembled Monolayer for the Binding and Study of Histidine-Tagged Proteins by Surface Plasmon Resonance," <i>Analytical Chemistry</i> 68(3):490-497 (1996).		
91	Southern, E.M., et al., "Arrays of Complementary Oligonucleotides for Analysing the Hybridisation Behavior of nucleic Acids," <i>Nucleic Acids Research</i> 22(8):1368-1373 (1994).		
92	Strobel, S. A., et al., "Site-Specific Cleavage of a Yeast Chromosome by Oligonucleotide-Directed Triple-Helix Formation," <i>Science</i> , 249:73-75 (1990).		
93	Su, et al., "Interfacial Nucleic Acid Hybridization Studied by Random Primer ^{32}P Labelling and Liquid-Phase Acoustic Network Analysis," <i>Analytical Chemistry</i> , 66(6):769-777 (1994).		
EXAMINER		DATE CONSIDERED	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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		APPLICANT BLACKBURN et al.	
		FILING DATE November 12, 1999	GROUP 1643
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
94	Takeda, H., et al., "Preparation of 1-Alkynyl 2-(Trimethylsilyl)ethyl Sulfides as Thiolare Anion Precursors for Self-Assembled Monolayers," <i>Tetrahedron Letters</i> 39:3701-3704 (1998).		
95	Telser, J., et al., "DNA Duplexes Covalently Labeled at Two Sites: Synthesis and Characterization by Steady-State and Time-Resolved Optical Spectroscopies," <i>J. Am. Chem. Soc.</i> , 111:7226-7232 (1989).		
96	Telser, J., et al., "DNA Oligomers and Duplexes Containing a Covalently Attached Derivative of Tris(2,2'-bipyridine)ruthenium(II): Synthesis and Characterization by Thermodynamic and Optical Spectroscopic Measurements," <i>J. Am. Chem. Soc.</i> , 111:7221-7226 (1989).		
97	Thara, T., et al., "Gene Sensor using Ferrocenyl Oligonucleotide," <i>Chem. Commun.</i> , 1609-1610 (1997).		
98	Tour, "Conjugated Macromolecules of Precise Length and Constitution. Organic Synthesis for the Construction of Nanoarchitectures," <i>Chem. Rev.</i> , 96:537-553 (1996).		
99	Tour, et al., "Self-Assembled Monolayers and Multilayers of Conjugated Thiols, α - ω -Dithiols, and Thioacetyl-Containing Adsorbates. Understanding Attachments between Potential Molecular Wires and Gold Surfaces," <i>J. Am. Chem. Soc.</i> , 117:9529-9534 (1995).		
100	Tullius, T.D. and B.A. Dombroski, "Iron(II) EDTA Used to Measure the Helical Twist Along Any DNA Molecule," <i>Science</i> , 230:679-681 (1985).		
101	Turro, N., et al. "Photoelectron Transfer Between Molecules Adsorbed in Restricted Spaces," <i>Photochem. Convers. Storage Sol. Energy, Proc. Int. Conf.</i> , 8th, pp 121-139 (1990).		
102	Turro, N. J., et al., "Molecular Recognition and Chemistry in Restricted Reaction Spaces. Photophysics and Photoinduced Electron Transfer on the Surfaces of Micelles, Dendrimers, and DNA," <i>Acc. Chem. Res.</i> , 24:332-340 (1991).		
103	Uosake, K., et al., "A Self-Assembled Monolayer of Ferrocenylalkane Thiols on Gold as an Electron Mediator for the Reduction of Fe(III)-EDTA in Solution," <i>Electrochimica Acta.</i> , 36(11/12):1799-1801 (1991).		
104	Van Ness, J., et al., "A Versatile Solid Support System for Oligodeoxynucleotide Probe-Based Hybridization Assays," <i>Nucleic Acids Research</i> , 19(12):3345-3349 (1991).		
105	Weber, et al., "Voltammetry of Redox-Active Groups Irreversibly Adsorbed onto Electrodes. Treatment Using the Marcus Relation between Rate and Overpotential," <i>Anal. Chem.</i> , 66:3164-3172 (1994).		
106	Williams, et al., "Studies of oligonucleotide interactions by hybridisation to arrays: the influence of dangling ends on duplex yield," <i>Nucleic Acids Research</i> , 22(8):1365-1367 (1994).		
107	Winkler, J. R., et al., "Electron Transfer in Ruthenium-Modified Proteins," <i>Chem. Rev.</i> , 92:369-379 (1992).		
108	Xu, et al., "Immobilization of DNA on an Aluminum(III) alkaneobisphosphonate Thin Film with Electrogenenerated Chemiluminescent Detection," <i>J. Am. Chem. Soc.</i> , 116:8386-8387 (1994).		
109	Xu, et al., "Immobilization and Hybridization of DNA on an Aluminum(III) Alkanebisphosphonate Thin Film with Electrogenenerated Chemiluminescent Detection," <i>J. Am. Chem. Soc.</i> , 117:2627-2631 (1995).		
110	Yang, et al., "Growth and Characterization of Metal(II) Alkaneobisphosphonate Multilayer Thin Films on Gold Surfaces," <i>J. Am. Chem. Soc.</i> , 115:11855-11862 (1993).		
111	Zhou, et al., "Fluorescent Chemosensors Based on Energy Migration in Conjugated Polymers: The Molecular Wire Approach to Increased Sensitivity," <i>J. Am. Chem. Soc.</i> , 117:12593-12602 (1995).		
EXAMINER		DATE CONSIDERED	

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INFORMATION DISCLOSURE CITATION PTO-1449 MAR 17 2000 MAR 15 2000 MAIL DATE CANCELED		ATTORNEY DOCKET NO. 66566-3/RFT/RMS/ RMK	SERIAL NO. 09/440,371
		APPLICANT BLACKBURN et al.	
		FILING DATE November 12, 1999	GROUP 1643
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
112	Derwent Publications, Ltd. XP002124777. "DNA Detection for Gene Analysis in Biological and Medical Application." abstract, 11-4-1997.		
113	Pontius, et al., "Rapid Renaturation of Complementary DNA Strands Mediated by Cationic Detergents: A Role for High-Probability Binding Domains in Enhancing the Kinetics of Molecular Assembly Processes," Proc. Natl. Acad. Sci. USA, 88:8237-8241 (1991).		
114	Pontius, et al., "Renaturation of Complementary DNA Strands Mediated gby Purified Mammalian Heterogeneous Nuclear Ribonucleoprotein A1 Protein: Implications for a Mechanism for Rapid Molecular Assembly," Proc. Natl. Acad. Sci. USA., 87:8403-8407 (1990).		
115	Gineitis, et al., "Dissociation and Isolation of Chromatin Proteins in Salt Solutions by an Aqueous Two-Phase System," Analytical Biochemistry, 139:400-403 (1984).		
116	Kohne, et al., "Room Temperature Method for Increasing the Rate of DNS Reassociation by Many Thousandfold: The Phenol Emulsion Reassociation Technique," Biochemistry, 16(24):5329-5341 (1977).		
117	Caruana, et al., "Enzyme-Amplified Amerometric Detection of Hybridization and of a Single Base Pair Mutation in an 18-Base Oligonucleotide on a 7-µm-Diameter Microelectrode," J. Am. Chem. Soc., 121:769-774 (1999).		
118	Albertsson, P. "Rartition Studies on Nucleic Acids I. Influence of Electrolytes, Polymer Concentration and Nucleic Acid Conformation on the Partition in the Dextran-Polyethylene Glycol System," Biochim. Biophys. Acta., 103:1-12 (1965).		
119	Müller, et al., "DNA Fractionation by Two-Phase Partition with Aid of a Base-Specific Macroligand," Analytical Biochemistry, 118:269-277 (1981).		
120	Müller, W. "Partitioning of Nucleic Acids," Partitioning In Aqueous Two-Phase Systems, 227-266 (1985).		
121	Gingeras, et al., "Hybridization Properites of Immobilized Nucleic Acids," Nucleic Acids Research, 15(13):5373-5390 (1987).		
122	Wetmur, J. "Acceleration of DNA Renaturation Rates," Biopolymers, 14:2517-2524 (1975).		
123	Amasino, R. "Acceleration of Nucleic Acid Hybridization Rate by Polyethylene Glycol," Analytical Biochemistry, 152:304-307 (1986).		
124	Herne, et al., "Characterization of DNA Probes Immobilized on Gold Surfaces," J. Am. Chem. Soc., 119:8916-8920 (1997).		
125	Steel, et al., "Electrochemical Quantitation of DNA Immobilized on Gold," Anal. Chem., 70:4670-4677 (1998).		
126	Finklea, H. "Electrochemistry of Organized Monolayers of Thiols and Related Molecules of Electrodes," Electroanalytical Chemistry: A Series of Advances, Vol. 20. Dekker, NY. 1966.		
127	Beattie, et al., "Flowthrough Genosensors: Designs and Applications," Publishing information not known.		
128	Doktycz, et al., "Genosensors and Model Hybridization Studies," Automation Technologies for Genome Characterization, ed. Tony J. Beugelskijk, chapter 10, 205-225 (1997).		
129	Maldonado-Rodriguez, et al., "Mutation Detection by Stacking Hybridization on Genosensor Arrays," Molecular Biotechnology, 11:13-25 (1999).		
130	Eggers, et al., "Genosensors: Microfabricated Devices for Automated DNA Sequence Analysis," Advances in DNA Sequencing Technology, 1891:113-126 (1993).		
EXAMINER _____ DATE CONSIDERED _____			

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.